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by Insight School

Submission date: 02-Sep-2021 01:20PM (UTC+0900)
Submission ID: 1509060961
File name: Sukirman_IJERE_Turnitin_Check_2.pdf (192.57K)
Word count: 6409
Character count: 35112

Inner Blended Learning Model Basic Learning In The New Normal Era In Indonesia

Article Info

Article history:

Received Jun 9, 2018
Revised Nov 20, 2018
Accepted Dec 11, 2018

Keywords:

Blended Learning,
Educational Technology,
Online Learning,
New Normal

ABSTRACT

The effects of the pandemic in the world of education have as many influences as the adjustment of learning models. This study aims to determine the effectiveness of blended learning as an alternative to online education in the new normal era. This quantitative research is an experimental study with a one-shot case study design conducted in several public high schools in the Special Region of Yogyakarta. The sampling technique used is a questionnaire technique, where the respondents involved in this study are teachers taken from the school that is the research location. The number of respondents involved in this study were 70 teachers who were determined using a simple random sampling technique. The data collection technique in this study used a questionnaire technique. The data analysis used is mathematical analysis by comparing the percentage of effectiveness of blended learning. Multiple regression analysis was also used to analyze the effect of the effectiveness of the application of the blended learning model during the Covid-19 pandemic. Based on the study results, the effectiveness of educational programs after using blended learning is 95.05%, much higher than the effectiveness of educational programs before using blended learning with a score of 73.24%, so it has a margin of 17%. The blended learning model affects the effectiveness of learning during the Covid-19 pandemic by 85.20%. Learning during the Covid-19 pandemic that implements the blended learning model will run more effectively and more successfully. Schools need to apply the blended learning model because the use of this method is effective, efficient, and more successful in the new normal era.

1. INTRODUCTION

The world is currently experiencing the effects of the Covid-19 pandemic. Higher education institutions are considered to be one of the fastest responders to the wave of the spread of the corona virus [1]. The pandemic period gave rise to many technical and substantive changes in implementation strategies, materials, and even learning evaluation. Facing this situation, educational institutions reacted quickly because they were considered to have the potential to increase the distribution of the spread of Covid-19. In addition, schools with large numbers of students are very influential in the process of spreading Covid-19 [2]. In addition to schools, all university service activities are also temporarily closed and carried out online, both lecture activities and other academic services. In other words, all university services are carried out from home or work from home. With this rare phenomenon, the teaching-learning process finally stagnated [3]. This can happen because the method of distribution of knowledge is considered less than optimal and adequate.

The sudden change in the learning system due to the Covid-19 pandemic has made many parties not fully ready to carry out online learning or study from home. However, so far there are still many teaching methods used by education that only use the lecture method [4]. Learning that is only carried out using the lecture method without any other variations of learning methods will affect the ability of students to capture the knowledge conveyed by the teacher. Students' abilities are not honed because students are not used to thinking outside the context of the teacher [5]. In addition, students become passive in choosing additional learning resources outside of the teacher's learning resources. Whereas various learning resources around students' lives can be used to help make it easier to understand learning material. In addition, teachers should not be the only source of learning, especially in today's digital era, various learning resources can be accessed by every student through the help of information technology [6]. Therefore, it is necessary to find an alternative to classical learning that can overcome these problems without eliminating the social ties between students and classmates and between students and teachers. In other words, education is not enough to do face-to-face classically as has been done so far. However, with technological advances in learning, it is hoped that teachers can take advantage of these technological advances to facilitate the learning process, so that learning can be carried out with a variety of methods.

As long as schools apply online, many students complain and get bored because the teaching methods used by teachers are increasingly monotonous and ineffective. Many teachers still stutter or are less adaptive

in teaching using the online system because they are used to doing conventional lectures [7]. In addition, most teachers are already in a comfortable and well-established state of conventional habits, so that with the changes that occur in learning, especially in technology, they are less adaptive and think that all these changes can shake the sustainability of these comfortable conditions [8]. Meanwhile, during online learning, most teachers have also recently used online learning support media such as Moodle. However, with the lack of adaptability of teachers in implementing online learning support media such as Moodle, many teachers only use it as a place to put teaching materials and assignments that can be downloaded by each student [9]. Some teachers also do not provide feedback such as explanations and clarifications of the material and assignments that have been studied. On the other hand, the teacher only gives a larger portion of the task than teaching activities [10]. This results in a greater student learning burden and they lose playing time to socialize in the community. Many teachers think that giving a lot of assignments can help students be more active, creative, and independent learning [11]. However, this is certainly not appropriate because students not only learn cognitive abilities, but affective, psychomotor, and social skills. Moreover, the assignments given to students are large and the processing time is short, and often coincides with the work on assignments in other subjects.

The transition process from conventional learning systems to online learning requires students, teachers, and other learning elements to adapt and be technology literate as soon as possible [12]. In addition, schools need to apply new learning models that are adaptive to the current conditions in life so that learning continues to run optimally as well as using the blended learning model. Blended learning is a combination of online and conventional face-to-face learning models [13]. This learning model combines many conventional learning methods such as lectures and face-to-face with independent learning methods such as projects, assignments, and laboratory activities as well as online learning such as e-learning, ICT (technology, information and communication), and multimedia. Furthermore, this blended learning model can be used as an alternative during the transition period to make the online learning process a success [14]. Blended learning can be developed according to the needs and learning objectives. In addition, the implementation of blended learning can also support the implementation of learning as it is today during the Covid-19 pandemic which is carried out remotely. With mixed learning, participants in learning activities can take advantage of the accessibility of online components with conventional classroom instruction and can expand the curriculum without increasing program completion time [15]. In addition, the learning process will be more student-centered, so that students better understand the subject matter presented by the teacher. The teacher's role which was originally a learning resource that provides knowledge to students will turn into a facilitator, companion, mentor, and partner for students to develop their skills and knowledge.

Blended learning with the Enriched-Virtual model is very suitable for learning during this new normal period. With the Enriched-virtual model, education carried out online for the last few months can now be integrated with conventional learning [16]. Learning can be done through live events, namely face-to-face learning at the same place and time (classroom) or at different times but in the exact location (virtual classroom). Virtual classrooms can be used to maximize online learning and minimize face-to-face learning in class [17]. In this case, it is certainly in line with students' desire to attend face-to-face learning at school. Teachers and students can do face-to-face online learning using the lecture application, which will turn into a facilitator, companion, mentor, and partner for students to develop their skills and knowledge. Blended learning provides students opportunities to carry out learning independently according to their learning style [18]. The combination of face-to-face learning and online lectures will provide a more interactive learning experience.

A more significant portion of online lessons can also make it easier for students to get various forms of learning material that can be accessed anytime and anywhere with the internet. The learning process will also be more fun and not monotonous because it uses more varied learning methods and media [19]. Learning can also be done using Self-Paced Learning, which combines traditional knowledge with independent learning that is not limited to time, place, and access to learning materials [20]. Conceptual material or understanding can be presented in the form of text or multimedia. In contrast, material that is procedural or requires practice in the laboratory can be shown in the form of animation or computer-based simulations. Students can do practical activities like in a natural laboratory with the help of a virtual laboratory. However, this media still has limitations, which can only be used as tutorial material [21]. Students still need direct practice in the laboratory to prove various theories that have been previously studied. Furthermore, teaching materials are first sent online via streaming video, visual audio streaming, and e-books that can be accessed via Moodle, Youtube, or Google Classroom, prepared in advance.

Learning activities between teachers and students can communicate and collaborate to get a vibrant, creative, and dynamic communication atmosphere through email facilities, chatrooms, websites, weblogs, or online discussion forums. This form of communication can add value to teachers and students, and parents to find learning patterns that are truly lively and refreshing in the atmosphere [22]. So that learning is delightful and felt by all parties, namely teachers, students, and parents at home, so that parents can monitor the learning process with a blended learning model that is fun and not dull so that it can improve the quality of learning

with various twists and turns with dynamics [23]. Learning outcomes in blended learning can be measured using a combination of assessment tests (tests or quizzes) and non-tests (portfolios, project assignments, product development, etc.). The assessment given should be done independently using ICT assistance and can be sent online. That way, students will adapt more quickly to the online learning system.

Blended learning also allows learning to be carried out entirely online. Through the Web-Enhanced Course, teachers and students are expected to take advantage of the internet and technology to improve the classroom's quality of learning [24]. With the internet, students can communicate with the teacher, friends, group members, and other sources. Online learning also requires teaching materials that are interesting and easy to understand. Therefore, teachers and students must be able to work together to find and find varied and innovative learning methods and media. Teachers and students must also be able to use, operate and implement technology in the online learning process [25]. That way, learning with the blended learning model can be carried out well, and it is hoped that all elements of learning can be better prepared for comprehensive online education. Through this blended learning, access to education, efficiency, and quality of learning and teaching can be improved [26]. Students are expected to be able to take advantage of online and digital media to develop critical thinking skills and problem-solving, as well as to have the skills to communicate and collaborate. Students and teachers are also expected to quickly adapt and always have the initiative to be creative and innovate as well as initiatives to access and analyze information to achieve real online learning [27]. Therefore, to maintain the survival of Indonesian people in this era, the educational system's improvement can be improved in quality and quality through active, creative, effective, and enjoyable learning activities for students. One way that can be taken is by implementing blended learning as an alternative to education. Thus, the purpose of this study is to determine the effectiveness of blended learning as an alternative to online education in the new normal era at the high school level.

2. LITERATURE REVIEW

2.1. The Basic Concept of Distance Learning

At first, learning was only done face-to-face. Teaching takes place face-to-face because there was no supporting administration to do distance teaching [28]. Face-to-face learning is the occurrence of learning interactions carried out by educators and students at the same time and place. Face-to-face learning is also called traditional learning. Along with the development of information technology, the learning process also changes. The learning process, which was initially only face-to-face, developed with online learning. Online learning is generally referred to as electronic learning (electronic learning) or shortened to e-learning [29]. E-learning has become part of learning to help face-to-face learning. E-learning is the assimilation of knowledge and skills continuously by adolescent students [30]. The assimilation is stimulated by synchronous or unsynchronized learning using internet technology. E-learning helps the face-to-face learning process, one of which is in distributing or distributing lesson material, homework, or projects from educators to students. It is also said that e-learning helps the learning process that cannot be done face-to-face. Mixing face-to-face learning and online learning will further maximize the efforts of educators as managers in achieving learning goals [31].

E-learning is an effective learning process produced by combining digital material delivery consisting of support and services in learning. E-learning as a form of education based on technology tools such as laptop computers, smartphones allow a person to study anywhere and anytime [32]. Four factors influence e-learning, namely learners, subject matter, learning atmosphere, and learning technology [33]. The function of e-learning in learning is used as a supplement, complement, or substitution [34]. There are 4 (four) things in the philosophical factors regarding e-learning, namely (1) e-learning is the delivery of information, communication, education, and online training, (2) e-learning provides a set of tools that can enrich conventional learning values so that responding to the challenges of globalization, (3) e-learning does not mean replacing conventional learning models but strengthening it with content enrichment and educational technology development, and (4) the capacity of students in mastering the material conveyed through e-learning varies widely, depending on the form, content, and delivery method.

Like other learning models, e-learning also has advantages and disadvantages. The benefits are learner-centered, independent learning, flexible in time and location, cost-effective for students, the potential for students from other countries, unlimited access to knowledge, and the ability to share and reuse knowledge [35]. The drawbacks are the lack of immediate feedback in e-learning that is out of sync; teachers need more time to prepare, is uncomfortable for some, and can cause frustration, anxiety, and confusion. In learning support services [36], it is stated that the proportion of content delivered in online learning is 30% - 79%. Blended learning involves a combination of online and face-to-face learning elements. This describes blended learning as a combination of delivery methods that complement each other and support student learning. Online discussions can be developed to facilitate peer tutorials among students [37]. Blended learning can bring significant changes, namely the existence of learning materials that are deliberately designed, developed, and

shared with people who want to access them. Still, they have limitations that affect the learning process. The flexibility of time and place of learning makes mixed learning the broadest possible opportunity for students to learn. There are three concepts in blended learning namely the concept of pedagogy, technology, and learning theory [38].

2.2. The Urgency of Learning Blended learning

Blended learning is the new normal that is currently widely used in education; whether we realize it or not, new normal has started to occur globally since the Covid-19 pandemic. Teaching and learning activities usually carried out face-to-face, where educators and students are physically present in classrooms and learning places, are now being replaced by learning activities through electronic media (e-learning) either synchronously or non-synchronously. Asynchronous e-learning can be done both online and offline [39]. In online learning, educators and students are simultaneously in the same internet application or platform and can interact with each other like conventional learning so far. Whereas in offline learning, educators upload material via the web, send via electronic mail or upload it via social media for later download by students [40].

In an offline way, students learn independently without being bound by time and place. On the other hand, e-learning synchronization can only occur online. Even though e-learning teaching and learning activities have been carried out by several universities for a long time, this method of learning is awareness of the Industrial Revolution 4.0 era, an era that has brought changes to the way humans work, interact, and transact [41]. From an educational perspective, educational theorists' general term as an implication of Industrial Revolution 4.0 is Education 4.0, to describe various ways to integrate technology in the Industrial Revolution 4.0 era both physically and not into learning. Education 4.0 is an innovation in the world of education in the age of Industrial Revolution 4.0; it answers the question can we do it? Education 4.0 can be seen as a creative response where humans take advantage of digital technology [42], open sources contents and global classrooms in the application of lifelong learning, flexible education systems, and personalized learning to play a better role in the middle of society. On the other hand, new normal e-learning is not an answer to a question but an adaptation of a condition that everyone is forced to do [43].

3. RESEARCH METHOD

This research is a quantitative research with experimental method. Meanwhile, the research design used in this experimental research is a one-shot case study design. One-shot case study research designs are useful for demonstrating the measurement power and scientific value of an experimental research design [44]. In other words, a one-shot case study design is used to compare the effectiveness of educational programs before implementing blended learning with the goals of educational programs after implementing blended learning. The results of this study show how effective the blended learning model is during the Covid-19 pandemic. The effectiveness of the application of the blended learning model during the Covid-19 pandemic in this study was measured using an effectiveness questionnaire. Meanwhile, the one-shot case study design scheme used in this study can be shown in Figure 1.

Figure 1. One-shot case study design scheme

Based on Figure 1, it can be shown that X is the treatment of the independent variable. This means that in this study the treatment used was the application of the blended learning model during the Covid-19 pandemic. Meanwhile, O is a measurement of the implementation of the blended learning model during the Covid-19 pandemic. This research was conducted in several public high schools in the Special Region of Yogyakarta. The participants involved in this study were teachers who were taken from the schools that were the research sites. The sampling technique used is simple random sampling. This technique is used based on the similarity of characteristics of state high school teachers in the Special Region of Yogyakarta. Therefore, using a simple random sampling technique obtained 70 teachers. Data collection was carried out based on the provision of questionnaires to 70 public high school teachers in the Special Region of Yogyakarta who were used as research samples using research instruments that had been prepared.

The instrument used is a questionnaire consisting of 15 statements. Furthermore, the data collection technique uses a questionnaire technique, namely the prepared questionnaire is distributed to respondents to obtain the data needed, namely to see whether or not the level of effectiveness in using the blended learning

model [45]. Meanwhile, the instruments used are in the form of statements or comments in implementing the blended learning model during the Covid-19 pandemic. The questionnaire used in the study implemented a Likert scale with statement score criteria of 5 (ST: very high), 4 (T: high), 3 (S: moderate), 2 (TT: not high), and 1 (STT: very not high).

Furthermore, the data analysis technique used in this study begins by analyzing the feasibility of the research instrument, namely a questionnaire to measure the effect of using the blended learning model during the Covid-19 pandemic. The questionnaire feasibility analysis carried out in this study included an analysis of the validity and reliability of the questionnaire [46]. Analysis of the validity of the statement items in this research questionnaire uses the product moment Pearson correlation validity test through the help of the SPSS program. Meanwhile, the reliability analysis of the questionnaire in this study was carried out using the Cronbach Alpha equation as shown in equation (1).

$$r_{11} = \left(\frac{k}{k-1}\right)\left(1 - \frac{\sum \sigma b^2}{\sigma t^2}\right) \quad (1)$$

Based on equation (1) it can be seen that r_{11} is the instrument reliability score, k is the number of items, $\sum \sigma b^2$ is the number of item variances, and σt^2 is the number of variances [47]. Meanwhile, the data analysis technique used to answer the purpose of this research is to compare the percentage of the effectiveness of learning activities before implementing blended learning with learning activities after applying blended learning. Learning will be tested and succeeded effectively and efficiently, if the results of the learning effectiveness show a score with an interval of 80-100% then the effectiveness of learning that implements blended learning is included in the high category. If the results of the learning effectiveness show a score with an interval of 70-79%, the effectiveness of learning that implements blended learning is included in the medium category. Meanwhile, if the results of learning effectiveness show a score of less than 70%, then the effectiveness of learning that implements blended learning is included in the low category [48]. Furthermore, the effectiveness of the blended learning model in learning during the Covid-19 pandemic was determined using regression analysis with the help of SPSS software.

4. RESULTS AND ANALYSIS

4.1. Questionnaire Validity and Reliability

This research was conducted using a measurement instrument in the form of a questionnaire. Before being used to measure the effectiveness of the application of the blended learning model, the questionnaire in this study was carried out with a feasibility test. The feasibility test of this research instrument is intended so that the instrument used is valid and reliable when measuring the effectiveness of the application of the blended learning model. The results of the questionnaire validity test in this study can be shown in Table 1.

Table 1
Questionnaire Validity Test Results

No.	Correlations	Information
1	0.973	Valid
2	0.955	Valid
3	0.946	Valid
4	0.935	Valid
5	0.973	Valid
6	0.891	Valid
7	0.884	Valid
8	0.973	Valid
9	0.908	Valid
10	0.973	Valid
11	0.958	Valid
12	0.948	Valid
13	0.947	Valid
14	0.948	Valid
15	0.921	Valid

Based on the results of the questionnaire validity test shown in Table 1, it can be seen that all the correlation values obtained are above the r table value. The value of r table for N is 15, which is 0.36. That is, the results of the questionnaire validity test as presented in Table 1 show that the questionnaire used to measure the effectiveness of the blended learning model is valid. This is evidenced by the correlation value for each item which is more than 0.8 and the lowest correlation value is 0.884 in the questionnaire item number 7. In addition, to test the feasibility of the questionnaire used to measure the effectiveness of the blended learning model, a reliability test is also carried out. The reliability test of the questionnaire in this study was carried out

using the Cronbach Alpha equation with the help of the SPSS program. The results of the questionnaire reliability test in this study can be shown as in Table 2.

Table 2
Questionnaire Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.988	15

Based on the results of the questionnaire reliability test presented in Table 2, it can be seen that the questionnaire reliability score is 0.988. A measurement instrument whose reliability is analyzed uses the Cronbach Alpha equation if the Alpha coefficient value is more than 0.60, then the measurement instrument can be said to be reliable [49]. Since the reliability score of the questionnaire in this study is 0.988 which is greater than 0.60, the questionnaire used to measure the effectiveness of the blended learning model during the Covid-19 pandemic is reliable. Therefore, in general the questionnaire used in this study is feasible to measure the effectiveness of the blended learning model during the Covid-19 pandemic.

4.2. The Effectiveness of Blended Learning Model

After the questionnaire developed in this study obtained decent results, the next step was to use the questionnaire to measure the effectiveness of the blended learning model during the Covid-19 pandemic. The results of the effectiveness of the blended learning model have a positive influence on learning activities during the Covid-19 pandemic. This can be shown from the percentage of the effectiveness percentage of the blended learning model on learning activities during the Covid-19 pandemic as presented in Table 3.

Table 3
Blended Learning Model Effectiveness Percentage

Before applying blended learning		Aspects Assessed	After applying blended learning	
Percentage (%)	value		Value	Percentage (%)
73.71	258	Ability to achieve educational goals	326	93.14
70.00	245	The ability to make students feel satisfied in the educational process	331	94.57
73.14	256	The ability to make students more creative in the educational process	333	95.14
74.86	262	Ability to take advantage of technological advances in education	337	96.29
72.29	253	The ability to make it easier for students to understand the material	332	94.86
73.14	256	The ability to make students learn more flexible	330	94.29
72.00	252	The ability to make students more expressive in education	329	94.00
74.00	259	The ability to make students get good learning outcomes in education	336	96.00
73.71	258	Ability to make education more attractive.\	335	95.71
74.00	259	The ability to make education more varied	332	94.86
73.14	256	The ability to make students faster in getting information	334	95.43
72.57	254	The ability to make students more severe and concentrate	333	95.14
74.00	259	Making education saves more on learning tools	333	95.14
73.43	257	The ability to make students more active in the educational process	334	95.43
74.57	261	The ability to make education better and following technological	335	95.71

Table 3 describes the results of the effectiveness of the application of the blended learning model in learning during the Covid-19 pandemic. The value in the "value" column is obtained from the total amount for each item. In contrast, the percentage column's value is obtained from the total amount for each item divided by the ideal number then multiplied by the value 100. This study shows that the ability of blended learning to achieve educational goals has better effectiveness than the effectiveness of education before using blended learning, namely 93.14% versus 73.71%. Meanwhile, making students feel satisfied in the educational process, the combined learning method provides a higher percentage value of 94.57%. The percentage of educational effectiveness before using blended learning is 70%. Furthermore, the effectiveness of the ability to make students more creative in the educational process, the blended learning method provides much higher energy, namely 95.14%. In contrast, the effectiveness of making students more creative in the educational approach before using blended learning is 73.14%. This also occurs in terms of the ability to take advantage of technological advances in education.

The combined learning method has much higher effectiveness at 96.29%. Meanwhile, the point occurs in terms of taking advantage of technological advances in education before using blended learning, amounting to 74.86%. Furthermore, this study's concern is the effectiveness in terms of the ability to make it easier for students to understand the material in education. Before using blended learning, the percentage of energy was 72.29%, but after using blended learning, the effectiveness was 94.86%. These results indicate that using the mixed learning method has a positive effect in making it easier for students to understand the material. It is no

less interesting to explore is related to its ability to make students learn more flexibly in the educational process. In this case, blended learning showed better results indicated by the percentage value obtained, 94.29%. Meanwhile, the effectiveness before using blended learning was only 73.14%. The ability to maximize students' expression in education is also a concern in this study.

In this regard, blended learning looks more effective, with its effectiveness value reaching 94%. Meanwhile, the ability to make students express themselves more optimally in education before using blended learning is only 72%. Next is the ability to make students get good learning outcomes in their education; it is clear that using blended learning has a higher value, namely 96%, while using blended learning only 74%. This also happened in terms of its ability to make education more attractive; it turned out that after using blended learning, the effectiveness was better at 95.71%, and before using blended learning, the effectiveness value was 73.71%. The ability to make education more varied is also a concern in this study. In this regard, using blended learning was higher than the effectiveness before using blended learning, namely 94.86% versus 74%. Meanwhile, the comparison of significance in terms of its ability to make students faster in obtaining information related to student learning outcomes is 95.43% versus 73.14%.

Another aspect that was also explored for its effectiveness in this study was making students more severe and concentrating on the educational process. In this regard, the point after using blended learning was 95.14%, meanwhile, the effectiveness before using blended learning was 72.57%. The ability to make education save more on learning equipment such as blackboards, markers, erasers, and paper is also a concern in this study related to these aspects. The effectiveness after using blended learning is 95.14% and before using blended learning is 74%. Hypothesis testing from this research can be drawn from a common thread that the respondents before applying the blended learning model aimed at 70.00-74.00 showed intermediate results, in this case, because there had not been any changes. However, after implementing blended learning, the scores were relatively high, namely 93.14-96.00. Thus, the level of success in the Blended Learning model of education can be said to be effective and successful very satisfactorily. The blended learning pattern is quite significant in accompanying children in the learning process so that it is more effective and efficient, and the results of learning.

Furthermore, this study shows the results of the effectiveness of the application of the blended learning model in learning during the Covid-19 pandemic. The results of the effectiveness of these variables are presented in Table 4.

Table 4
The Effectiveness of Blended Learning Model

R	R Square	Adjusted R Square	Std. Error of the Estimate	Statistics		
				R Square Dif.	F Dif.	Sig. F Dif.
.923	.852	.8101	7.764	.611	3.291	.006

Based on Table 4, the effectiveness of using the blended larning model in learning during the Covid-19 pandemic based on the results of the regression test has been confirmed with R = .923 and R^2 = .852. In other words, the results of the regression coefficients show that the use of the blended model is effective in learning during the COVID-19 pandemic by 85.20% and the remaining 14.80% is influenced by other factors. These results cause H_a to be accepted because the significance level is smaller than 0.05, which is 0.06. So that the use of the blended model effectively influences learning during the Covid-19 pandemic.

5. Discussion

This research is an experimental research with a one-shot case study research design. The design of this research was carried out by applying the blended learning model in learning during the Covid-19 pandemic. Furthermore, the effectiveness of the application of the blended learning model is measured. The effectiveness of the blended learning model was measured using a questionnaire developed in this study. Therefore, before measuring the effectiveness of the blended learning model, the step taken in this research is to develop a questionnaire. The questionnaire that had been developed in this study was then tested for feasibility through validity and reliability tests. The results of the feasibility test on the questionnaire developed in this study showed that the questionnaire was valid and reliable. This means that the questionnaire developed in this study can also be used by researchers or other practitioners who will measure or test the effectiveness of a learning model whose characteristics resemble the blended learning model during the Covid-19 pandemic [50]. With the questionnaire developed in this study feasible to be used in measuring the effectiveness of the learning model, this research indirectly also contributes to the field of education in providing valid and reliable measurement instruments.

In this study, there is a significant difference from what the authors found, where the learning and discussion results show a fairly high score, which is 93.14-95.00. On the other hand, before applying the blended learning method, they were only able to catch up to a score of 70.00-74.00. These results indicate that in general learning needs to be done with a variety of variations. That is, students need a varied treatment so that the subject matter delivered by the teacher can be easily understood by them. It is not surprising that the term appears when interacting with something monotonous will cause boredom, especially for students whose curiosity is at their peak [51]. Therefore, it is not surprising that the results of implementing the blended learning model have a high percentage of learning. In addition, during the Covid-19 pandemic, learning variations are also needed that are able to suppress the spread of Covid-19, one of which is through blended learning. Learning during the Covid-19 pandemic which was carried out by applying the blended learning model was carried out with the majority of delivering material remotely [52]. Students and teachers carry out learning using the help of various existing technologies. Although there are positive and negative sides to distance learning, for health reasons, distance learning using the blended learning model must still be done.

Distance learning that applies the blended learning model can be done with the help of technology. Therefore, learning that utilizes electronic, digital, or internet technology is often referred to as e-learning [53]. E-learning is an effective learning process produced by combining the delivery of digital materials consisting of support and services in learning [54]. In line with this statement, the Pustika [55] stated that e-learning is a computer-based educational tool or system that allows a person to learn anywhere and anytime. Four factors affect e-learning, namely students, subject matter, learning atmosphere, and learning technology [56]. The function of e-learning in learning is used as a complement, complement, or substitute. There is a correlation between the research findings and the theoretical basis that the researchers used previously. The findings of this study found that the application of the blended learning model during the Covid-19 pandemic at public high schools in Yogyakarta was very different, namely the blended learning method that could be done by teachers or education practitioners.

The application of the blended learning model in this study focuses more on improving the quality and effectiveness of learning and more on the level of enjoying the beauty of blended learning. In addition, the implementation of the blended learning model also makes it easier for parents to monitor the learning process carried out by each student. In this case indirectly the parents of students also learn to understand the cognitive, affective, and psychomotor development of students [57]. Based on the research results, this blended learning model is more effective, efficient, and simple. Therefore, it is hoped that other schools will participate in carrying out this learning because there has been a significant increase in the learning process that applies the blended learning model during the Covid-19 pandemic and even parents also participate in monitoring children who are in the learning process. Meanwhile, this research can add to the treasures in providing alternatives in the learning process in applying blended learning models during the Covid-19 pandemic.

6. CONCLUSION

Based on the findings of this study, it can be concluded that the effectiveness of educational programs after using blended learning is 95.05%, much higher than the effectiveness of educational programs before using blended learning, which is 73.24%. The implementation of the blended learning model affects learning during the Covid-19 pandemic by 85.20%. This finding proves that the implementation of the blended learning model positively affects learning activities during the Covid-19 pandemic. These results indicate that the blended learning model is feasible to use as an alternative learning model during the Covid-19 pandemic. Moreover, students need variations in the implementation of learning activities. The existence of variations in learning can make it easier for students to understand the material presented by the teacher. Students also become more interested in the learning process that uses a variety of learning models. This is because students who are in the developmental stage are at the peak of their curiosity. The results of this study can provide benefits to educators or educational practitioners who will implement a blended learning model during the Covid-19 pandemic.

7. RECOMMENDATIONS AND LIMITATIONS

Following the research findings, there are several recommendations given to teachers or educators as subject actors in learning and students as research objects, as well as other researchers who discuss the same research theme. Teachers who are the center of education are expected to have sufficient competence to carry out the blended learning model. Students as objects subjected to the learning model also need to be given enough initial knowledge to follow correctly. Meanwhile, researchers who will explore similar research themes can develop and complement other research approaches and models. There are several limitations experienced in this study. This research only discusses research subjects in high schools. Data analysis is still in the form of descriptive statistics. Researchers who will research with the same theme can develop more profound into the broader research subject and more complex research types.

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